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 NEWS  1          Web Page URLs for STN Seminar Schedule - N. America
 NEWS  2  Dec 17  The CA Lexicon available in the CAPLUS and CA files
 NEWS  3  Feb 06  Engineering Information Encompass files have new names
 NEWS  4  Feb 16  TOXLINE no longer being updated
 NEWS  5  Apr 23  Search Derwent WPINDEX by chemical structure
 NEWS  6  Apr 23  PRE-1967 REFERENCES NOW SEARCHABLE IN CAPLUS AND CA
 NEWS  7  May 07  DGENE Reload

 NEWS EXPRESS  May 23 CURRENT WINDOWS VERSION IS V6.0a,
               CURRENT MACINTOSH VERSION IS V5.0C (ENG) AND V5.0JB (JP),
               AND CURRENT DISCOVER FILE IS DATED 06 APRIL 2001
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 NEWS LOGIN    Welcome Banner and News Items
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FILE 'HOME' ENTERED AT 08:19:46 ON 31 MAY 2001

=> file .gary

COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                     0.30       0.30

FILE 'MEDLINE' ENTERED AT 08:20:49 ON 31 MAY 2001

FILE 'CANCERLIT' ENTERED AT 08:20:49 ON 31 MAY 2001

FILE 'BIOSIS' ENTERED AT 08:20:49 ON 31 MAY 2001
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=> s (BMP? or COP? or OP?) same angiogen?
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MISSING OPERATOR OP?) SAME
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=> s (BMP? or COP? or OP?) (N) angiogen?

   3 FILES SEARCHED...
L1   131 (BMP? OR COP? OR OP?) (N) ANGIOGEN?

=> dup rem l1

PROCESSING COMPLETED FOR L1
L2   78 DUP REM L1 (53 DUPLICATES REMOVED)

=> s l2 and py<2001

   2 FILES SEARCHED...
   3 FILES SEARCHED...
L3   57 L2 AND PY<2001

=> s l3 and (bone or osteo?)

L4   5 L3 AND (BONE OR OSTEO?)

=> d ibib abs 1-5

L4   ANSWER 1 OF 5 CANCERLIT
ACCESSION NUMBER: 2000225398 CANCERLIT
DOCUMENT NUMBER: 20225398
TITLE: **Osteogenic** protein-1, a **bone**
                    morphogenetic protein, induces angiogenesis in the chick
                    chorioallantoic membrane and synergizes with basic
                    fibroblast growth factor and transforming growth
                    factor-beta1.
AUTHOR: Ramoshebi L N; Ripamonti U
CORPORATE SOURCE: Bone Research Laboratory, Medical Research
                    Council/University of the Witwatersrand, Medical School,
                    Johannesburg 2193, South Africa. natr@chiron.wits.ac.za
SOURCE: ANATOMICAL RECORD, **(2000)**. Vol. 259, No. 1, pp.
                    97-107.
                    Journal code: 4QM. ISSN: 0003-276X.
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
FILE SEGMENT: MEDL; L; Priority Journals
LANGUAGE: English
OTHER SOURCE: MEDLINE 20225398
ENTRY MONTH: 200008
AB   Capillary invasion is a vital regulatory signal during **bone**
     morphogenesis that is influenced by angiogenic molecules such as
     fibroblast growth factor (FGF) and some members of the transforming
growth
     factor-beta (TGF-beta) superfamily, including TGF-betas themselves.
     Bone morphogenetic proteins (BMPs), which are members of the
     TGF-beta superfamily, have previously not been shown to possess direct
     angiogenic properties. **Osteogenic** protein-1 (OP-1; BMP-7) is a
     potent regulator of cartilage and **bone** differentiation in vivo.
     The **osteogenic** and angiogenic properties of OP-1 at both ortho-
     and heterotopic sites in adult chacma baboons (Papio ursinus) are
enhanced

synergistically by the simultaneous application of relatively low doses of TGF-beta1. The single application of relatively high doses of TGF-beta1 (20 ng), and bFGF (500 ng) or relatively low (100 ng) and high (1,000 ng) doses of OP-1 in the chick chorioallantoic membrane (CAM) assay elicited a prominent and (for OP-1) dose-dependent angiogenic response. The binary application of a relatively low dose of OP-1 (100 ng) with a relatively low dose of bFGF (100 ng) or with a relatively low (5 ng) or high (20 ng) dose of TGF-beta1 resulted in a synergistic enhancement of the angiogenic response. The angiogenic effect of the relatively low doses of the combined morphogens was distinctly more pronounced than that of the single application of the relatively high doses of the respective factors. The present findings suggest that these morphogens may be deployed in binary combination in order to accentuate experimental angiogenesis. The cooperative interaction of the different morphogens in the CAM assay may provide important biological clues towards the control of clinical **angiogenesis**. **Copyright** 2000 Wiley-Liss, Inc.

L4 ANSWER 2 OF 5 CANCERLIT
ACCESSION NUMBER: 2000195750 CANCERLIT
DOCUMENT NUMBER: 20195750
TITLE: Enhancement of angiogenesis by the implantation of self **bone** marrow cells in a rat ischemic heart model.
AUTHOR: Kobayashi T; Hamano K; Li T S; Katoh T; Kobayashi S; Matsuzaki M; Esato K
CORPORATE SOURCE: First Department of Surgery, Yamaguchi University School of Medicine 1-1-1 Minamikogushi, Ube, Yamaguchi, 755-8505, Japan.
SOURCE: JOURNAL OF SURGICAL RESEARCH, **(2000)**. Vol. 89, No. 2, pp. 189-95.
Journal code: K7B. ISSN: 0022-4804.
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
FILE SEGMENT: MEDL; L; Priority Journals
LANGUAGE: English
OTHER SOURCE: MEDLINE 20195750
ENTRY MONTH: 200005
AB Background. **Bone** marrow contains various kinds of primitive cells which differentiate into endothelial cells and could secrete several growth factors. Therefore, we attempted to induce therapeutic angiogenesis using self **bone** marrow cells in a rat model. Materials and methods. Quantitative angiogenesis was examined using a sponge implantation assay that indicated whether the rat **bone** marrow cells had induced angiogenesis or not. Employing a rat ischemic heart model, **bone** marrow cells were injected directly into the ischemic area and the number of vessels was examined immunohistochemically using the anti-CD31 monoclonal antibody. The contributed growth factors revealed the levels present in the ischemic myocardium by an enzyme-linked immunosorbent assay and reverse transcription polymerase chain reaction. Results. The sponge implantation assay showed that **bone** marrow cells induced angiogenesis. Light microscopic analysis of the vessel count positively stained by anti-CD31 in the ischemic area showed that angiogenesis had been induced to a significantly greater degree in the

group implanted with **bone** marrow cells (BMI group) than in the group injected with phosphate-buffered saline (PBS group) 1 week after BMI. Levels of the inflammatory cytokines interleukin-1 (IL-1beta) and cytokine-induced neutrophil chemoattractant (CINC) in the BMI group were significantly elevated compared with those in the PBS group. Conclusions. Self **bone** marrow cell implantation induced angiogenesis in a rat ischemic heart model as a result of elevation of the levels of IL-1beta and CINC. Thus, **bone** marrow implantation could be a novel and simple method to induce therapeutic **angiogenesis**.

L4 ANSWER 3 OF 5 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2001:101510 BIOSIS
DOCUMENT NUMBER: PREV200100101510
TITLE: **Osteopontin** is an angiogenetic factor through stimulating mitogen-activated protein kinases.
AUTHOR(S): Mogi, M. (1); Fukuo, K. (1); Ogihara, T. (1)
CORPORATE SOURCE: (1) Department of Geriatric Medicine, Osaka University Medical School, Osaka Japan
SOURCE: Journal of Submicroscopic Cytology and Pathology, (**July, 2000**) Vol. 32, No. 3, pp. 405. print.
Meeting Info.: XIth International Vascular Biology Meeting Geneva, Switzerland September 05-09, 2000
ISSN: 1122-9497.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L4 ANSWER 4 OF 5 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2000:413057 BIOSIS
DOCUMENT NUMBER: PREV200000413057
TITLE: BMPs stimulate angiogenesis through **osteoblast** -derived VEGF-A.
AUTHOR(S): Deckers, M. (1); van Bezooijen, R. (1); Hoogendam, J. (1); Papapoulos, S. (1); Lowik, C. (1)
CORPORATE SOURCE: (1) Endocrinology, LUMC, Leiden Netherlands
SOURCE: Journal of Bone and Mineral Research, (**September, 2000**) Vol. 15, No. Suppl. 1, pp. S204. print.
Meeting Info.: Twenty-Second Annual Meeting of the American Society for Bone and Mineral Research Toronto, Ontario, Canada September 22-26, 2000 American Society for Bone and Mineral Research
. ISSN: 0884-0431.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L4 ANSWER 5 OF 5 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 1999165928 EMBASE
TITLE: Vitronectin.
AUTHOR: Schvartz I.; Seger D.; Shaltiel S.
CORPORATE SOURCE: S. Shaltiel, Department of Biological Regulation, The Weizmann Institute of Science, IL-76100 Rehovot, Israel. lishalt@wiccmail.weizmann.ac.il
SOURCE: International Journal of Biochemistry and Cell Biology, (1999) 31/5 (539-544).
Refs: 15
ISSN: 1357-2725 CODEN: IJBBFU
PUBLISHER IDENT.: S 1357-2725(99)00005-9

COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 002 Physiology
029 Clinical Biochemistry
037 Drug Literature Index
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Vitronectin is a multifunctional glycoprotein present in blood and in the extracellular matrix. It binds glycosaminoglycans, collagen, plasminogen and the urokinase-receptor, and also stabilizes the inhibitory conformation of plasminogen activation inhibitor-1. By its localization in the extracellular matrix and its binding to plasminogen activation inhibitor-1, vitronectin can potentially regulate the proteolytic degradation of this matrix. In addition, vitronectin binds to complement, to heparin and to thrombin-antithrombin III complexes, implicating its participation in the immune response and in the regulation of clot formation. The biological functions of vitronectin can be modulated by proteolytic enzymes, and by exo- and ecto-protein kinases present in blood. Vitronectin contains an RGD sequence, through which it binds to the integrin receptor .alpha.(v).beta.3, and is involved in the cell attachment, spreading and migration. Antibodies against .alpha.(v).beta.3 or synthetic peptides containing an RGD sequence are now being tested as therapeutic agents in the treatment of human cancers, **bone** diseases (e.g. **osteoporosis**) and in pathological disorders which involve **angiogenesis**. **Copyright** (C) 1999 Elsevier Science Ltd.

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FILE 'MEDLINE, CANCERLIT, BIOSIS, EMBASE, SCISEARCH' ENTERED AT 08:20:49 ON 31 MAY 2001
L1 131 S (BMP? OR COP? OR OP?) (N) ANGIOGEN?
L2 78 DUP REM L1 (53 DUPLICATES REMOVED)
L3 57 S L2 AND PY<2001
L4 5 S L3 AND (BONE OR OSTEO?)

=> s (BMP? or COP? or OP?) (p) angiogen?

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L5 5131 (BMP? OR COP? OR OP?) (P) ANGIOGEN?

=> s l5 NOT Copyright

L6 4299 L5 NOT COPYRIGHT

=> s l6 and (bone or osteo?)

L7 307 L6 AND (BONE OR OSTEO?)

=> s (BMP-3 or BMP-4 or BMP-5 or BMP-6 or BMP-7 or BMP-8 or BMP-9 or BMP-10 or BMP-11 or BMP-12 or BMP-13 or BMP-14 or BMP-15 or COP-5 or COP-7)

4 FILES SEARCHED...
L8 3114 (BMP-3 OR BMP-4 OR BMP-5 OR BMP-6 OR BMP-7 OR BMP-8 OR BMP-9 OR

BMP-10 OR BMP-11 OR BMP-12 OR BMP-13 OR BMP-14 OR BMP-15 OR COP-5 OR COP-7)

=> s l8 and angiogen?

L9 27 L8 AND ANGIOGEN?

=> dup rem l9

PROCESSING COMPLETED FOR L9
L10 8 DUP REM L9 (19 DUPLICATES REMOVED)

=> d ibib abs 1-8

L10 ANSWER 1 OF 8 MEDLINE DUPLICATE 1
ACCESSION NUMBER: 2000247184 MEDLINE
DOCUMENT NUMBER: 20247184 PubMed ID: 10785405
TITLE: Differential gene expression by endothelial cells in distinct **angiogenic** states.
AUTHOR: Glienke J; Schmitt A O; Pilarsky C; Hinzmann B; Weiss B; Rosenthal A; Thierauch K H
CORPORATE SOURCE: Research Laboratories of Schering AG, Berlin, Germany.
SOURCE: EUROPEAN JOURNAL OF BIOCHEMISTRY, (2000 May) 267 (9) 2820-30.
Journal code: EMZ; 0107600. ISSN: 0014-2956.
PUB. COUNTRY: GERMANY: Germany, Federal Republic of
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200006
ENTRY DATE: Entered STN: 20000622
Last Updated on STN: 20000622
Entered Medline: 20000615

AB **Angiogenesis** is a complex process that can be regarded as a series of sequential events comprising a variety of tissue cells. The major problem when studying **angiogenesis** in vitro is the lack of a model system mimicking the various aspects of the process in vivo. In this study we have used two in vitro models, each representing different and distinct aspects of **angiogenesis**. Differentially expressed genes in the two culture forms were identified using the suppression subtractive hybridization technique to prepare subtracted cDNA libraries. This was followed by a differential hybridization screen to pick up overexpressed clones. Using comparative multiplex RT-PCR we confirmed the differential expression and showed differences up to 14-fold. We identified a broad range of genes already known to play an important role during **angiogenesis** like Flt1 or TIE2. Furthermore several known genes are put into the context of endothelial cell differentiation, which up to now have not been described as being relevant to **angiogenesis**, like NrCAM, Claudin14, **BMP-6**, PEA-15 and PINCH. With ADAMTS4 and hADAMTS1/METH-1 we further extended the set of matrix metalloproteases expressed and regulated by endothelial cells.

L10 ANSWER 2 OF 8 MEDLINE DUPLICATE 2
ACCESSION NUMBER: 2000259014 MEDLINE
DOCUMENT NUMBER: 20259014 PubMed ID: 10801076
TITLE: Induction of endochondral bone formation by recombinant human transforming growth factor-beta2 in the baboon (Papio

ursinus).
AUTHOR: Ripamonti U; Crooks J; Matsaba T; Tasker J
CORPORATE SOURCE: Bone Research Laboratory, Medical Research Council/University of the Witwatersrand, Medical School, Johannesburg, South Africa.. 177RIPA@chiron.wits.ac.za
SOURCE: GROWTH FACTORS, (2000) 17 (4) 269-85.
Journal code: AOI; 9000468. ISSN: 0897-7194.
PUB. COUNTRY: Switzerland
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200007
ENTRY DATE: Entered STN: 20000720
Last Updated on STN: 20000720
Entered Medline: 20000710

AB Members of the transforming growth factor-beta (TGF-beta) superfamily, the bone morphogenetic and osteogenic proteins (BMPs/OPs) but not the TGF-beta proteins themselves, induce endochondral bone formation in vivo, when implanted in extraskeletal heterotopic sites of rodents. Here we show that recombinant human TGF-beta2 (hTGF-beta2) induces endochondral bone formation 30 days after implantation in heterotopic intramuscular sites of the baboon (Papio ursinus) at doses of 1, 5 and 25 microg per 100 mg of guanidinium-inactivated collagenous bone matrix as carrier. On day 90 there was generation of large radiopaque and corticalized intramuscular ossicles. Five and 25 microg hTGF-beta2 induced large ossicles in the rectus abdominis of the primate as evaluated by key parameters of bone formation, including generated tissue area, mineralized bone and osteoid volumes, and tissue alkaline phosphatase activity. On day 30 and 90 after healing, hTGF-beta2 also induced bone formation when implanted in the rectus abdominis in conjunction with a sintered porous hydroxyapatite as carrier. mRNA expression in tissues from heterotopic specimens showed OP-1 (**BMP-7**) and **BMP-3** transcripts in low abundance and with a linear dose-dependent increase both in collagenous matrix and hydroxyapatite samples. Type IV collagen mRNA expression, a marker of **angiogenesis**, was stronger in collagenous than hydroxyapatite samples. Growth and differentiation factor-10 (GDF-10) mRNA transcripts were expressed in ossicles with a distinctly chondrogenic phase, but its expression was greater in ossicles generated in porous hydroxyapatites, in which bone formation is not via a chondrogenic phase, but is rather intramembranous, without expression of type II collagen mRNA. In the same animals, however, 10 and 100 microg of the recombinant morphogen delivered by identical carriers (collagenous matrix and sintered hydroxyapatite) failed to heal calvarial defects. Thus in the primate, TGF-betas themselves are inducers of endochondral bone formation, although the present data strongly indicate that the bone inductive activity of hTGF-beta2 is site and tissue specific, since a single application of hTGF-beta2, or hTGF-beta1 in previously published experiments, did not induce bone in calvarial defects, but did induce endochondral bone differentiation in heterotopic sites.

L10 ANSWER 3 OF 8 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2000:413057 BIOSIS
DOCUMENT NUMBER: PREV200000413057
TITLE: BMPs stimulate **angiogenesis** through

osteoblast-derived VEGF-A.
AUTHOR(S): Deckers, M. (1); van Bezooijen, R. (1); Hoogendam, J. (1); Papapoulos, S. (1); Lowik, C. (1)
CORPORATE SOURCE: (1) Endocrinology, LUMC, Leiden Netherlands
SOURCE: Journal of Bone and Mineral Research, (September, 2000) Vol. 15, No. Suppl. 1, pp. S204. print.
Meeting Info.: Twenty-Second Annual Meeting of the American
Society for Bone and Mineral Research Toronto, Ontario, Canada September 22-26, 2000 American Society for Bone and Mineral Research
. ISSN: 0884-0431.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L10 ANSWER 4 OF 8 MEDLINE DUPLICATE 3
ACCESSION NUMBER: 2000225398 MEDLINE
DOCUMENT NUMBER: 20225398 PubMed ID: 10760748
TITLE: Osteogenic protein-1, a bone morphogenetic protein, induces
angiogenesis in the chick chorioallantoic membrane and synergizes with basic fibroblast growth factor and transforming growth factor-beta1.
AUTHOR: Ramoshebi L N; Ripamonti U
CORPORATE SOURCE: Bone Research Laboratory, Medical Research Council/University of the Witwatersrand, Medical School, Johannesburg 2193, South Africa.. natr@chiron.wits.ac.za
SOURCE: ANATOMICAL RECORD, (2000 May 1) 259 (1) 97-107.
Journal code: 4QM; 0370540. ISSN: 0003-276X.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200006
ENTRY DATE: Entered STN: 20000706
Last Updated on STN: 20000706
Entered Medline: 20000623

AB Capillary invasion is a vital regulatory signal during bone morphogenesis that is influenced by **angiogenic** molecules such as fibroblast growth factor (FGF) and some members of the transforming growth factor-beta (TGF-beta) superfamily, including TGF-betas themselves. Bone morphogenetic proteins (BMPs), which are members of the TGF-beta superfamily, have previously not been shown to possess direct **angiogenic** properties. Osteogenic protein-1 (OP-1; **BMP-7**) is a potent regulator of cartilage and bone differentiation in vivo. The osteogenic and **angiogenic** properties of OP-1 at both ortho- and heterotopic sites in adult chacma baboons (Papio ursinus) are enhanced synergistically by the simultaneous application of relatively low doses of TGF-beta1. The single application of relatively high doses of TGF-beta1 (20 ng), and bFGF (500 ng) or relatively low (100 ng) and high (1,000 ng) doses of OP-1 in the chick chorioallantoic membrane (CAM) assay elicited a prominent and (for OP-1) dose-dependent **angiogenic** response. The binary application of a relatively low dose of OP-1 (100 ng) with a relatively low dose of bFGF (100 ng) or with a relatively low (5 ng) or high (20 ng) dose of TGF-beta1 resulted in a synergistic enhancement of the **angiogenic** response. The **angiogenic**

effect of the relatively low doses of the combined morphogens was distinctly more pronounced than that of the single application of the relatively high doses of the respective factors. The present findings suggest that these morphogens may be deployed in binary combination in order to accentuate experimental **angiogenesis**. The cooperative interaction of the different morphogens in the CAM assay may provide important biological clues towards the control of clinical **angiogenesis**.

L10 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2001 BIOSIS
ACCESSION NUMBER: 2000:214595 BIOSIS
DOCUMENT NUMBER: PREV200000214595
TITLE: Evaluation and imaging of the **angiogenic** ability of VEGF, bFGF, **BMP-4** and TGFbeta-1 in the rat corneal pocket assay and assessment of the anti-**angiogenic** activity of minocycline and doxycycline against VEGF induced neovascularization.
AUTHOR(S): Alvarez, Enrique (1); Esterman, M. A. (1); Considine, E. L. (1); Menon, K. (1); Phares, V. G. (1); Teicher, B. A. (1)
CORPORATE SOURCE: (1) Lilly Res Lab, Indianapolis, IN USA
SOURCE: Proceedings of the American Association for Cancer Research Annual Meeting, (March, 2000) No. 41, pp. 65. Meeting Info.: 91st Annual Meeting of the American Association for Cancer Research. San Francisco, California, USA April 01-05, 2000
ISSN: 0197-016X.
DOCUMENT TYPE: Conference
LANGUAGE: English
SUMMARY LANGUAGE: English

L10 ANSWER 6 OF 8 EMBASE COPYRIGHT 2001 ELSEVIER SCI. B.V.
ACCESSION NUMBER: 1999155471 EMBASE
TITLE: Smad5 knockout mice die at mid-gestation due to multiple embryonic and extraembryonic defects.
AUTHOR: Chang H.; Huylebroeck D.; Verschueren K.; Guo Q.; Matzuk M.M.; Zwijsen A.
CORPORATE SOURCE: M.M. Matzuk, Program in Developmental Biology, Baylor College of Medicine, Houston, TX 77030, United States. mmatzuk@bcm.tmc.edu
SOURCE: Development, (1999) 126/8 (1631-1642).
Refs: 59
ISSN: 0950-1991 CODEN: DEVPED
COUNTRY: United Kingdom
DOCUMENT TYPE: Journal; Article
FILE SEGMENT: 021 Developmental Biology and Teratology
022 Human Genetics
029 Clinical Biochemistry
LANGUAGE: English
SUMMARY LANGUAGE: English
AB Smad5 has been implicated as a downstream signal mediator for several bone morphogenetic proteins (BMPs). To understand the in vivo function of Smad5, we generated mice deficient in Smad5 using embryonic stem (ES) cell technology. Homozygous mutant embryos die between E9.5 and E11.5, and display variable phenotypes. Morphological defects are first detected at

E8.0 in the developing amnion, gut and heart (the latter defect being similar to BMP-2 knockout mice). At later stages, mutant embryos fail to undergo proper turning, have craniofacial and neural tube abnormalities, and are edematous. In addition, several extraembryonic lesions are observed. After E9.0, the yolk sacs of the mutants contain red blood cells but lack a well-organized vasculature, which is reminiscent of **BMP -4**, TGF-.beta.1 and TGF-.beta. type II receptor knockout mice. In addition, the allantois of many Smad5 mutants is fused to the chorion, but is not well-elongated. A unique feature of the Smad5 mutant embryos is that ectopic vasculogenesis and hematopoiesis is observed in the amnion, likely due to mislocation of allantois tissue. Despite the expression of Smad5 from gastrulation onwards, and in contrast to knockouts of Smad2 and Smad4, Smad5 only becomes essential later in extraembryonic and embryonic development.

L10 ANSWER 7 OF 8 MEDLINE DUPLICATE 4
ACCESSION NUMBER: 1999387615 MEDLINE
DOCUMENT NUMBER: 99387615 PubMed ID: 10459859
TITLE: Osteogenic protein-1 increases gene expression of vascular endothelial growth factor in primary cultures of fetal rat calvaria cells.
AUTHOR: Yeh L C; Lee J C
CORPORATE SOURCE: Department of Biochemistry, The University of Texas Health Science Center, San Antonio 78284-7760, USA.. carolyeh@biochem.uthscsa.edu
SOURCE: MOLECULAR AND CELLULAR ENDOCRINOLOGY, (1999 Jul 20) 153 (1-2) 113-24.
Journal code: E69; 7500844. ISSN: 0303-7207.
PUB. COUNTRY: Ireland
Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199910
ENTRY DATE: Entered STN: 19991101
Last Updated on STN: 19991101
Entered Medline: 19991020

AB Osteogenic protein-1 (OP-1 or **BMP-7**) stimulates new bone formation in vivo and induces cell proliferation and differentiation of osteoblasts in vitro. In the present study, we examined effects of OP-1 on the expression of vascular endothelial growth factor (VEGF) in primary cultures of fetal rat calvaria (FRC) cells. OP-1 increased the steady-state level of VEGF mRNA by about 3-fold in an OP-1 concentration- and time-dependent manner. The increase in VEGF mRNA level depended on transcription and was sensitive to cell replication. The VEGF mRNA stability was unaffected. The mRNA levels for both types of VEGF receptors, Flk-1 and Flt-1 were low but detectable in FRC cells by RT-PCR and were not changed by OP-1. Inhibition of VEGF synthesis and function by antisense oligonucleotide and by suramin, respectively arrested the OP-1-induced alkaline phosphatase activity and mineralized bone nodule formation. Together with published studies of VEGF on vascular endothelial cells which are usually found in close proximity to osteoblastic cells in vivo, these results suggest that VEGF participates in the OP-1-induced osteogenesis by taking part in bone cell differentiation and by promoting **angiogenesis** at the site of bone formation.

L10 ANSWER 8 OF 8 MEDLINE DUPLICATE 5
ACCESSION NUMBER: 94168042 MEDLINE
DOCUMENT NUMBER: 94168042 PubMed ID: 8122519
TITLE: Initiation and promotion of bone differentiation by bone morphogenetic proteins.
AUTHOR: Reddi A H; Cunningham N S
CORPORATE SOURCE: Department of Orthopaedic Surgery, Johns Hopkins University
School of Medicine, Baltimore, Maryland.
SOURCE: JOURNAL OF BONE AND MINERAL RESEARCH, (1993 Dec) 8 Suppl 2 S499-502. Ref: 31
Journal code: 130; 8610640. ISSN: 0884-0431.
PUB. COUNTRY: United States
Journal; Article; (JOURNAL ARTICLE)
General Review; (REVIEW)
(REVIEW, TUTORIAL)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 199404
ENTRY DATE: Entered STN: 19940412
Last Updated on STN: 19970203
Entered Medline: 19940407

AB The presence of growth and differentiation factors in bone has been demonstrated by subcutaneous implantation of demineralized bone matrix that initiates new cartilage and bone morphogenesis. The genes for bone morphogenetic proteins (BMPs) have been cloned and expressed. Recombinant BMPs induce endochondral bone formation in vivo. The multistep sequential developmental cascade consists of chemotaxis, mitosis, and differentiation of cartilage and bone. The pleiotropic response has been well characterized. BMPs stimulate osteogenic and chondrogenic phenotypes. Natural bovine osteogenin (**BMP-3**) and recombinant **BMP-4** are equipotent in chemotaxis, limb bud chondrogenesis, cartilage maintenance, and in vivo bone induction. There are multiple isoforms of BMPs, raising the biologic relevance of the redundancy. The mode of action and second messengers are not clear. BMPs appear to have cognate receptors as demonstrated by iodinated BMP-2B (**BMP-4**). Other novel members of the BMP family include osteogenic protein 1 (**BMP-7**) and osteogenic protein 2 (**BMP-8**). Bone morphogenetic proteins are members of the transforming growth factor-beta superfamily and include three distinct subfamilies: BMP-2, **BMP-3**, and **BMP-7** . Native **BMP-3** and recombinant **BMP-4** bind type IV collagen of the basement membrane. This novel connection may be the long elusive mechanistic explanation for the requirement of **angiogenesis** and vascular invasion for bone morphogenesis. BMPs may have a role in fracture repair, periodontal regeneration, and alveolar ridge augmentation.

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---Logging off of STN---

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Executing the logoff script...

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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	38.61	38.91

STN INTERNATIONAL LOGOFF AT 08:44:26 ON 31 MAY 2001

Your wildcard search against 2000 terms has yielded the results below

Search for additional matches among the next 2000 terms

starting with: COP$(COPHPCOOH).P28-P86,P88-P88,P23-P27,P20-P22,P1-P18,P19-P19.

Search Results -

Terms	Documents
(BMP$ or OP$ or COP$) near angiogen$	1

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Refine Search: (BMP$ or OP$ or COP$) near angiogen$ Clear

Search History

Today's Date: 5/31/2001

DB Name	Query	Hit Count	Set Name
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	(BMP$ or OP$ or COP$) near angiogen$	1	L2
USPT,PGPB,JPAB,EPAB,DWPI,TDBD	(BMP-7 or OP-1) near angiogen$	0	L1